

Claims

What is claimed is:

- 1 1. An optical margin testing system for an automatic power
2 control loop comprising:
3 an optical circuit including a laser diode and a monitor diode coupled
4 to said automatic power control loop;
5 a bias generator circuit for generating a control signal; said control
6 signal applied to said automatic power control loop; and
7 said control signal enabling an operation point of said laser diode to
8 both increase and decrease by a set percentage value.
- 1 2. An optical margin testing system for an automatic power
2 control loop as recited in claim 1 wherein said bias generator circuit for
3 generating said control signal includes a tri-state receiver.
- 1 3. An optical margin testing system for an automatic power
2 control loop as recited in claim 2 wherein said tri-state receiver receives an
3 input signal; said input signal is applied to said tri-state receiver for selecting
4 one of a normal operational mode, an increased set percentage value
5 operational mode, and a decreased set percentage value operational mode.
- 1 4. An optical margin testing system for an automatic power
2 control loop as recited in claim 3 wherein said bias generator circuit for
3 generating said control signal includes a current mirror coupled to said tri-
4 state receiver.
- 1 5. An optical margin testing system for an automatic power
2 control loop as recited in claim 4 wherein said current mirror provides said
3 control signal applied to said automatic power control loop.
- 1 6. An optical margin testing system for an automatic power
2 control loop as recited in claim 1 wherein said automatic power control loop
3 applies a bias current to said laser diode responsive to said control signal.

1 7. An optical margin testing system for an automatic power
2 control loop as recited in claim 1 wherein said monitor diode coupled to said
3 automatic power control loop provides a feedback current to said automatic
4 power control loop.

1 8. An optical margin testing system for an automatic power
2 control loop as recited in claim 4 wherein said bias generator circuit for
3 generating said control signal includes an input current generating circuit
4 coupled to said current mirror.

1 9. An optical margin testing system for an automatic power
2 control loop as recited in claim 8 wherein said input current generating circuit
3 includes a variable resistor having a value represented by R_{APC} ; said
4 variable resistor reflecting a voltage reference value V_{REF} for generating an
5 input current applied to said current mirror.

1 10. An optical margin testing system for an automatic power
2 control loop as recited in claim 9 wherein said input current applied to said
3 current mirror is substantially equal to V_{REF} / R_{APC} .

1 11. An optical margin testing system for an automatic power
2 control loop as recited in claim 9 wherein said input current generating circuit
3 includes an operational amplifier coupled to said variable resistor and
4 wherein said voltage reference value V_{REF} is applied to said operational
5 amplifier.

1 12. An optical margin testing system for an automatic power
2 control loop comprising:
3 an optical circuit including a laser diode and a monitor diode coupled
4 to said automatic power control loop;
5 a tri-state receiver;
6 a current mirror coupled to said tri-state receiver for generating a
7 control signal; said control signal applied to said automatic power control
8 loop; said control signal enabling an operation point of said laser diode to
9 both increase and decrease by a set percentage value; and
10 an input signal being applied to said tri-state receiver for selecting one
11 of a normal operational mode, an increased set percentage value
12 operational mode, and a decreased set percentage value operational mode;

1 13. An optical margin testing system for an automatic power
2 control loop as recited in claim 12 wherein said automatic power control loop
3 applies a bias current to said laser diode responsive to said control signal.

1 14. An optical margin testing system for an automatic power
2 control loop as recited in claim 12 wherein said monitor diode coupled to
3 said automatic power control loop provides a feedback current to said
4 automatic power control loop responsive to said control signal.

1 15. An optical margin testing system for an automatic power
2 control loop as recited in claim 12 includes an input current generating circuit
3 coupled to said current mirror.

1 16. An optical margin testing system for an automatic power
2 control loop as recited in claim 15 wherein said input current generating
3 circuit coupled to said current mirror includes a variable resistor having a
4 value represented by R_{APC} ; said variable resistor reflecting a voltage
5 reference value V_{REF} for generating an input current applied to said current
6 mirror.

1 17. An optical margin testing system for an automatic power
2 control loop as recited in claim 16 wherein said input current applied to said
3 current mirror is substantially equal to V_{REF} / R_{APC} .

- 1 18. An optical margin testing system for an automatic power
- 2 control loop as recited in claim 16 wherein said input current generating
- 3 circuit includes an operational amplifier coupled to said variable resistor and
- 4 wherein said voltage reference value V_{REF} is applied to said operational
- 5 amplifier.

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